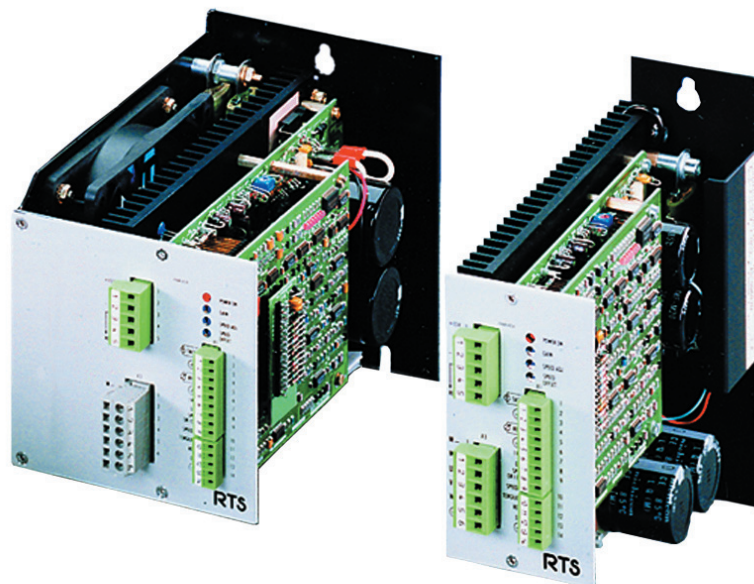




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# RTS, RS, RX and AXEM Series

DC Servo Drives



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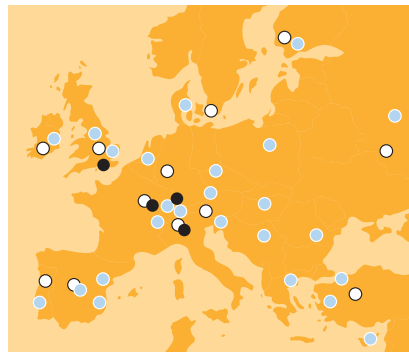
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# DC Servo Drive - RTS Series

## Overview

### Description

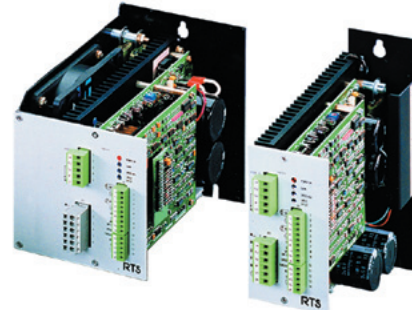
The RTS servo amplifiers are designed for driving DC servo motors and are available in ratings up to 6.5 kW.

These products enable speed control of DC motors with or without tachometers.

They integrate main supply, auxiliary supply and braking resistor circuits in a compact package.

### Features

- Battery, single-phase or three-phase power supply
- U-RI or tachometer control
- Integrated braking resistor
- Full protecting features
- High compactness
- Panel or rack mounting
- 3U Eurocard



### Technical Characteristics - Overview

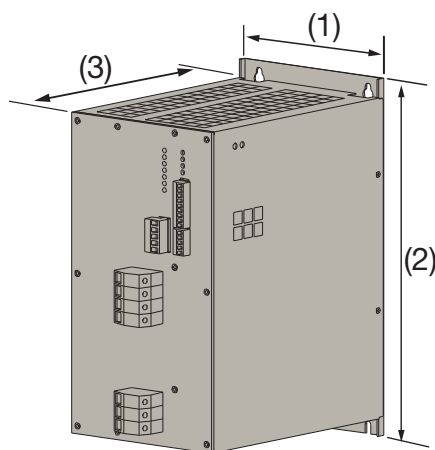
<b>Power supply</b>	Single phase, three phase or battery
<b>Nominal current</b>	3...40 A
<b>Peak current</b>	10...80 A
<b>Operating Temperature</b>	0...40 °C (derate by 35 % per 10 °C >40 °C to 60 °C max.)
<b>Altitude</b>	1000 m (derate by 10 % >1000 m per 1000 m to 4000 m max.)
<b>Protection</b>	IP00, IP20 for versions with covering cap

## Technical Data

Product type	Power supply input [V..]	Output current (nominal/peak) [A]	Nominal output voltage [VDC]	Associated transformer (minimum power)
<b>Panel mounting</b>				
RTS 71 04- 301	32 VAC 1 ph. ±10 %	3/10	40	TT_11133
RTS 71 060 102R	48 VAC 1 ph. ±10 %	10/20	60	TT-11135
RTS 71 130 102R	100 VAC 1 ph. ±10 %	12/24	130	TT_11147
RTS 73 060 102R	48 VAC 3 ph. ±10 %	10/20	60	TT-11136
RTS 73 130 102R	100 VAC 3 ph. ±10 %	12/24	130	TT_11145
RTS 73 130 204R	100 VAC 3 ph. ±10 %	20/40	130	TT_11140
RTS 73 190 103R	135 VAC 3 ph. ±10 %	16/32	190	TT_11117
RTS 73 200 408R	150 VAC 3 ph. ±10 %	40/80	200	TT_11119
RTS 42 BA0 102	24-48 VDC battery	12/24	Ubatt-2	
RTS P2 BA0 204	24-48 VDC battery	20/40	Ubatt-2	
RTS 72 BA0 408	36-72 VDC battery	40/80	Ubatt-2	
<b>Rack Mounting</b>				
RTS 61 04- 301	32 VAC 1 ph. ±10 %	3/10	40	TT_11133
RTS 63 060 102R	48 VAC 3 ph. ±10 %	10/20	60	TT_11136
RTS 63 130 102R	100 VAC 3 ph. ±10 %	12/24	130	TT_11145
RTS 42 BA0 102	24-48 VDC battery	12/24	Ubatt-2	

All the RTS servo amplifiers are supplied with a RZ6602 setting board.

## Dimensions



Product type / size	Height (2) [mm]	Width (1) [mm]	Depth (3) [mm]	Weight [kg]
<b>Panel mounting</b>				
RTS 71 04- 301	150	65	212	1
RTS 71 060 102R	180	65	212	1.1
RTS 71 130 102R	180	95	212	1.9
RTS 73 060 102R	149	65	212	1
RTS 73 130 102R	149	95	212	1.5
RTS 73 130 204R	149	121	221	1.9
RTS 73 190 103R	149	121	212	1.9
RTS 73 200 408R	275	139	229	6
RTS 42 BA0 102	149	65	212	1
RTS P2 BA0 204	149	65	212	1.5
RTS 72 BA0 408	275	70	229	2.5
<b>Rack mounting</b>				
RTS 61 04- 301	128.4	60.6	215	0.9
RTS 63 060 102R	128.4	60.6	215	0.9
RTS 63 130 102R	128.4	60.6	215	0.9
RTS 42 BA0 102	128.4	50.4	215	0.85



## Accessories

Accessories	Description
TT_11133	0.12 kVA transformer 230/400 VAC primary 32 VAC 1 ph. ± 5 % secondary
TT_11134	0.63 kVA transformer 230/400 VAC primary 32 VAC 1 ph. ± 5 % secondary
TT_11135	0.63 kVA transformer 230/400 VAC primary 48 VAC 1 ph. ± 5 % secondary
TT_11136	0.5 kVA transformer 230/400 VAC primary 48 VAC 3 ph. ± 5 % secondary
TT_11137	1.6 kVA transformer 230/400 VAC primary 48 VAC 3 ph. ± 5 % secondary
TT_11138	2.5 kVA transformer 230/400 VAC primary 48 VAC 3 ph. ± 5 % secondary
TT_11147	1.6 kVA transformer 230/400 VAC primary 100 VAC 3ph. ± 5 % secondary
TT_11144	0.63 kVA transformer 230/400 VAC primary 100 VAC ± 5 % secondary
TT_11145	1 kVA transformer 230/400 VAC primary 100 VAC 3 ph. ± 5 % secondary
TT_11139	1.6 kVA transformer 230/400 VAC primary 100 VAC 3 ph. ± 5 % secondary
TT_11140	2.5 kVA transformer 230/400 VAC primary 100 VAC + 48 VAC 3 ph. ± 5 % secondary
TT_11141	4 kVA transformer 230/400 VAC primary 100 VAC + 48 VAC 3 ph. ± 5 % secondary
TT_11115	1 kVA transformer 230/400 VAC primary 135 VAC 3 ph. ± 5 % secondary
TT_11116	1.6 kVA transformer 230/400 VAC primary 135 VAC 3 ph. ± 5 % secondary
TT_11117	2.5 kVA transformer 230/400 VAC primary 135 VAC 3 ph. ± 5 % secondary
TT_11118	4 kVA transformer 230/400 VAC primary 135 VAC 3 ph. ± 5 % secondary
TT_11119	6.3 kVA transformer 230/400 VAC primary 135 VAC 3 ph. ± 5 % secondary
TT_11120	10 kVA transformer 230/400 VAC primary 135 VAC 3 ph. ± 5 % secondary
CZ463068	56 Ω 200 W Brake Resistor FC - one per phase - to be added with 10 kVA transformer
TP_83131	Cover for RTS 16/32 A & 20/40 A
TP_83132	Cover for RTS 3/10 A & 10/20 A - 60 VDC Three phase & 12/24 A battery
TP_83133	Cover for RTS 12/24 A - 130 VDC Three phase
TP_83138	Cover for RTS 10/20 A - 60 VDC Single phase
TP_83140	Cover for RTS 12/24 A - 130 VDC Single phase
RACE234	Rack RTS 3 U - 1 to 4 axis
RACE234V	22 Rack RTS 3 U - 1 to 4 axis with ventilation
RACE238	Rack RTS 3 U - 1 to 8 axis
RACE238V	32 Rack RTS 3 U - 1 to 8 axis with ventilation
TL_84032	Cover for rack RTS 81 mm
TL_84045	Cover for rack RTS 51 mm
RG_6601	Acceleration / deceleration board
RG_6602	Acceleration / deceleration board for RTS 40/80 A
SF_02022	Choke for RTS - 16 A - 2.5 mH (recommended for cables > 40 m)
SF_02023	Choke for RTS - 25 A - 1.5 mH (recommended for cables > 40 m)
SF_02024	Choke for RTS - 40 A - 1.25 mH (recommended for cables > 40 m)
SF_02031	Choke for RTS - 12 A - 1 mH (recommended for cables > 40 m)
FR_13020	20 A 1 ph. / 3 ph. input main filter

## Order Code

### DC Servo Drive - RTS

	1	2	3	4	5
Order example	<b>RTS</b>	<b>71</b>	<b>060</b>	<b>102</b>	<b>R</b>

<b>1</b>	<b>Type</b>	
	RTS	DC Servo Drive
<b>2</b>	<b>Mounting type / power supply</b>	
	71	
	73	see table "Technical Data"
	42	
	...	
<b>3</b>	<b>Output voltage</b>	
	40	
	60	see table "Technical Data"
	130	
	...	
<b>4</b>	<b>Output current</b>	
	102	see table "Technical Data"
<b>5</b>	<b>Brake resistance</b>	
	R	see table "Technical Data"



# High Performance DC Servo Motor - RS Series

## Overview

### Description

Using high energy magnets, RS DC motors combined with RTS drives are particularly suitable for applications which require a very compact solution or a high dynamic level.

### Characteristics and advantages

- High performance characteristics
- Excellent low-speed functioning
- High compactness
- Very long service life
- Rare earth magnets
- Tacho, encoder resolver and brake in option



### Features

- **Shaft**
  - RS1 to RS4: Smooth full shaft
  - RS5 and RS6: Full keyed shaft
- **2<sup>nd</sup> Shaft end**
  - RS1 to RS3: possibility to mount standard tacho or encoder
  - RS5 and RS6: possibility to mount standard tacho, adaptation for encoder mounting in option
- **Output cables 1 m without connector**
- **Options**
  - Brake (RS2 to RS6)
  - Tachometer
  - Adaptation 2<sup>nd</sup> shaft end for encoder mounting (RS5 and RS6)

### Technical Characteristics - Overview

<b>Motor type</b>	DC motors with rare earth magnets
<b>Number of poles</b>	4
<b>Protection degree</b>	RS1 to RS4: IP40 RS5 and RS6: IP54
<b>Insulation</b>	Class F
<b>Torque at low speed</b>	0.05 ... 13 Nm
<b>Permanent current at low speed</b>	1.5 ... 28 A
<b>Rated voltage</b>	20.7 ... 105 V
<b>Rated speed</b>	2 000 ... 3 000 min <sup>-1</sup>
<b>Rotor inertia</b>	2.4 ... 8 300 kgmm <sup>2</sup>

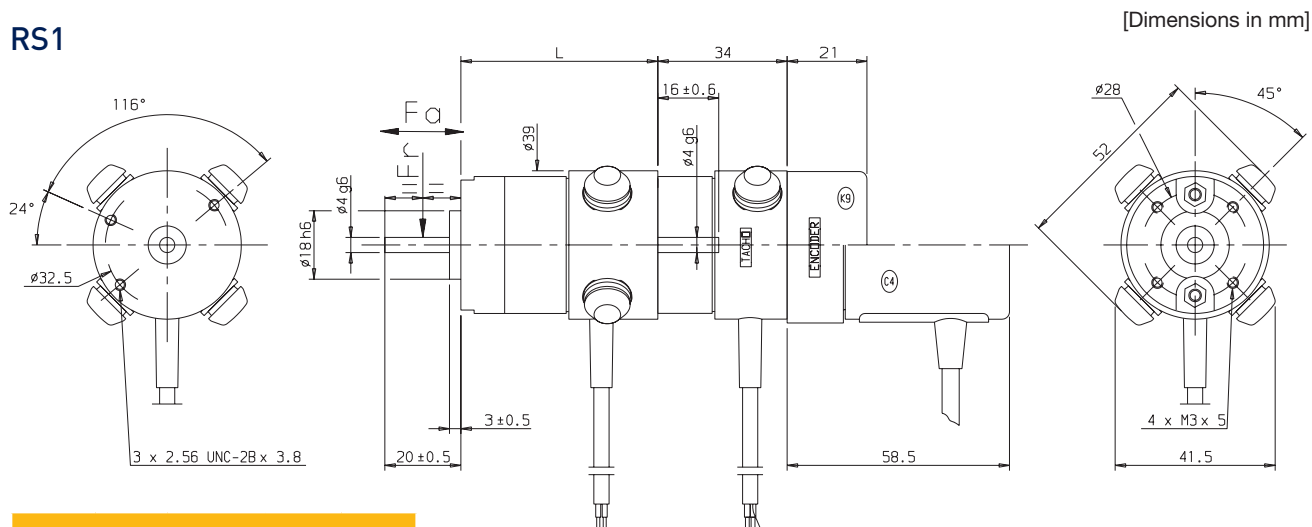
## Technical Data

Torque at low speed $M_0$ [Nm]	Permanent current at low speed $I_0$ [A]	Rated Voltage U [V]	Rated Speed N [min <sup>-1</sup> ]	Rotor Inertia [kgmm <sup>2</sup> ]	Product Code			Typical combination
					■	00		
0.05 0.092 0.13	1.5 2.3 2.7	20.7 21.2 23.7	3000 3000 3000	2.4 4.1 5.8	RS110MR1 RS120GR1 RS130ER1	■ ■ ■	00 00 00	RTS 3/10-40M RTS 3/10-40M RTS 3/10-40M
0.11 0.225 0.232 0.31 0.39	2.5 4.1 2.8 5.6 6	24 25.4 38.6 24 27.6	3000 3000 3000 3000 3000	13 195 195 26 325	RS210LR1 RS220FR1 RS220KR1 RS230CR1 RS240BR1	■ ■ ■ ■ ■	00 00 00 00 00	RTS 3/10-40M RTS 10/20-60 <sup>(1)</sup> RTS 3/10-40M RTS 10/20-60 <sup>(1)</sup> RTS 10/20-60 <sup>(1)</sup>
0.28 0.54 0.78 0.98	2.6 4.5 5.9 6.9	49 49 51 53	3000 3000 3000 3000	54 83 110 140	RS310NR1 RS320HR1 RS330ER1 RS340CR1	■ ■ ■ ■	00 00 00 00	RTS 10/20-60 <sup>(1)</sup> RTS 10/20-60 <sup>(1)</sup> RTS 10/20-60 <sup>(1)</sup> RTS 10/20-60 <sup>(1)</sup>
0.48 0.93 1.3 1.36 1.74	3.6 6.2 8.1 6.6 7	60 60 43 78 90	3000 3000 2000 3000 3000	137 225 310 310 400	RS410RR1 RS420JR1 RS430FR1 RS430HR1 RS440GR1	■ ■ ■ ■ ■	00 00 00 00 00	RTS 10/20-60 <sup>(1)</sup> RTS 10/20-60 <sup>(1)</sup> RTS 10/20-60 <sup>(1)</sup> RTS 12/24-130 T RTS 12/24-130 T
1.9 3.1 4 5	7.9 10.9 13 15	82 92 97 104	2700 2700 2700 2700	1000 1350 1700 2050	RS510LR1 RS520GR1 RS530ER1 RS540CR1	■ ■ ■ ■	00 00 00 00	RTS 12/24-130 T RTS 12/24-130 T RTS 20/40-130 T RTS 20/40-130 T
8 10.8 13	22.3 25 28	100 100 105	2400 2000 2000	5300 6800 8300	RS620GR1 RS630FR1 RS640ER1	■ ■ ■	00 00 00	RTS 40/80-190 T RTS 40/80-190 T RTS 40/80-190 T

<sup>(1)</sup> M = single phase or T = three phase

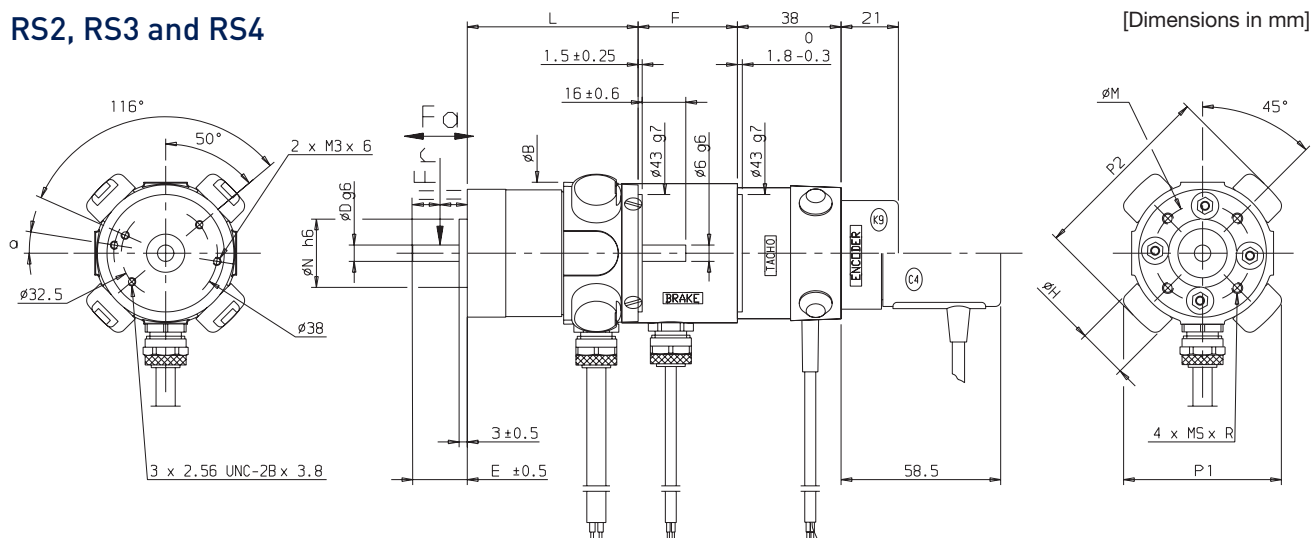
# Dimensions

## RS1



RS1 dimensions				
Motor	L	Weight [kg]	Fr <sup>(1)</sup> [daN]	Fa <sup>(1)</sup> [daN]
RS110	52.1	0.27	6	3
RS120	68.1	0.36	6	3
RS130	84.1	0.45	6	3

## RS2, RS3 and RS4

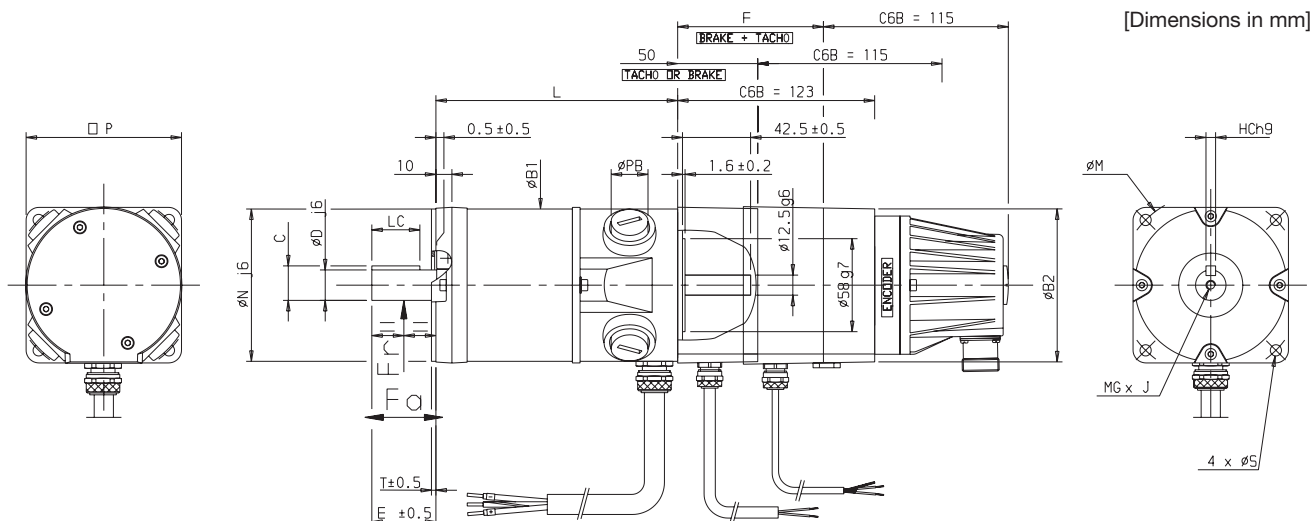


RS2, RS3 and RS4 with brake, tacho and encoder dimensions

Motor	a	N	D	E	B	L	F	P1	P2	H	MSxR	M	Weight [kg]	Fr <sup>(1)</sup> [daN]	Fa <sup>(1)</sup> [daN]
RS210	9°	25	6	20	52	63	36.4	58	68	18.5	M4x6	36	0.54	18	10
RS220	9°	25	6	20	52	79	36.4	58	68	18.5	M4x6	36	0.7	18	10
RS230	9°	25	6	20	52	95	36.4	58	68	18.5	M4x6	36	0.86	18	10
RS240	9°	25	6	20	52	111	36.4	58	68	18.5	M4x6	36	1	18	10
RS310	-	32	9	25	68	80.5	41	69	83	18.5	M5x8	45	0.9	28	15
RS320	-	32	9	25	68	100.5	41	69	83	18.5	M5x8	45	1.3	28	15
RS330	-	32	9	25	68	120.5	41	69	83	18.5	M5x8	45	1.6	28	15
RS340	-	32	9	25	68	140.5	41	69	83	18.5	M5x8	45	2	28	15
RS410	-	50	11	32	83	95.5	40	82	98	22	M5x8	65	1.2	40	20
RS420	-	50	11	32	83	115.5	40	82	98	22	M5x8	65	1.8	40	20
RS430	-	50	11	32	83	135.5	40	82	98	22	M5x8	65	2.4	40	20
RS440	-	50	11	32	83	155.5	40	82	98	22	M5x8	65	3	40	20

<sup>(1)</sup> Fr and Fa not cumulative

RS5 and RS6



RS5 and RS6 with brake, tacho and encoder dimensions																			
Motor	P	N	C	D	LC	E	T	B1	PB	L	F	B2	S	M	MGxJ	HC	Weight [kg]	Fr <sup>(1)</sup> [daN]	Fa <sup>(1)</sup> [daN]
RS510	97	95	21.5	19	30	40	3	96	25	151	91	96	7	115	M6x18	6	5.1	70	23
RS520	97	95	21.5	19	30	40	3	96	25	180	91	96	7	115	M6x18	6	6.3	70	23
RS530	97	95	21.5	19	30	40	3	96	25	209	91	96	7	115	M6x18	6	7.5	70	23
RS540	97	95	21.5	19	30	40	3	96	25	238	91	96	7	115	M6x18	6	8.7	70	23
RS620	120	110	27	24	40	50	3.5	117	30	246	93	117	10	130	M8x20	8	11.5	80	26
RS630	120	110	27	24	40	50	3.5	117	30	284	93	117	10	130	M8x20	8	14	80	26
RS640	120	110	27	24	40	50	3.5	117	30	321	93	117	10	130	M8x20	8	16.3	80	26

<sup>(1)</sup> Fr and Fa not cumulative

## Options

Tachometers and brakes						
Motors	Tachometer		Brakes [Voltage 24 VDC +/- 10 %]			
	Model	EMF [V/1000 min <sup>-1</sup> ]	Holding torque [Nm]		Inertia [kgmm <sup>2</sup> ]	Weight [kg]
			20 °C	100 °C		
RS1	TBN 103	3	-	-	-	-
RS2	TBN 206	6	0.6	0.55	2	0.2
RS3	TBN 206	6	1.5	1.4	10	0.18
RS4	TBN 206	6	1.5	1.4	10	0.18
RS5	TBN 306	6	6	5.5	53	0.45
RS6	TBN 306	6	12	11.5	157	0.9

Encoders					
Model	Associated motors	Pulse per rev	Encoder reference	Mounting kit reference	Connector reference
C2	RS1	500	220215P0002	220071R0025	
	RS1	1000	220215P0012	220071R0025	
	RS2 / RS3 / RS4	500	220215P0001	220071R0025	
	RS2 / RS3 / RS4	1000	220215P0004	220071R0025	
C6	RS5 / RS6	500	220024P0001	220071R0002	220065R4621
	RS5 / RS6	1000	220024P0003	220071R0002	220065R4621
	RS5 / RS6	2000	220024P0006	220071R0002	220065R4621
	RS5 / RS6	5000	220024P0005	220071R0002	220065R4621
C6B	RS5 / RS6	500	220031R0001	220071R0004	220065R4621
	RS5 / RS6	1000	220031R0003	220071R0004	220065R4621
	RS5 / RS6	2000	220031R0008	220071R0004	220065R4621
	RS5 / RS6	2500	220031R0004	220071R0004	220065R4621
	RS5 / RS6	5000	220031R0005	220071R0004	220065R4621

## Order Code

### RS Series

	1	2	3	4	5	6	7
Order example	<b>RS</b>	<b>120</b>	<b>E</b>	<b>R</b>	<b>1</b>	<b>0</b>	<b>11</b>

<b>1</b>	<b>Motor type</b>	
	<b>RS</b>	Motor with neodyme magnets
<b>2</b>	<b>Motor size and length</b>	
	<b>120</b>	
	<b>130</b>	see table "Technical data"
	<b>320</b>	
	...	
<b>3</b>	<b>Winding</b>	
	<b>L</b>	Depend of motor size, speed and voltage/current, see table "Technical data"
	<b>H</b>	
	<b>M</b>	
	...	
<b>4</b>	<b>Fix code</b>	
	<b>R</b>	
<b>5</b>	<b>Mechanical features</b>	
	<b>1</b>	Output cables (standard)
	<b>2</b>	Terminal box
	<b>3</b>	Motor with resolver
	<b>5</b>	Special motor
<b>6</b>	<b>Options</b>	
	<b>0</b>	No accessories (standard)
	<b>1</b>	Tacho
	<b>2</b>	Brake (RS2 to RS6)
	<b>3</b>	Tacho + brake (RS2 to RS6)
	<b>4</b>	Encoder adaptation <sup>(1)</sup> (size 5 and 6 only)
	<b>5</b>	Tacho + Encoder adaptation (size 5 and 6 only)
	<b>6</b>	Brake + Encoder adaptation (size 5 and 6 only)
	<b>7</b>	Tacho + Brake + Encoder adaptation (size 5 and 6 only)
<b>7</b>	<b>Customer specification</b>	
	<b>00</b>	Standard catalogue definition - smooth shaft (size 1 -> 4) - shaft with key way (size 5-6)

<sup>(1)</sup> Encoder adaptation is standard for RS1, RS2, RS3 and RS4.



# Low-Cost DC Servo Motor - RX Series

## Overview

### Description

The RX DC motors, combined with RTS drives, provide an economical solution for any servo applications. They are particularly suitable for low power systems in clean atmospheres.

### Advantages

- Excellent price/performance ratio
- Very low torque modulation
- High quality construction
- Very long service life
- 2nd shaft end for tacho and encoder mounting
- Tacho and brake as option

### Applications

- Factory Automation
- Life Science Diagnostic

### Features

- **Shaft**
  - RX1 and RX3: Smooth full shaft
  - RX5 and RX6: Full keyed shaft
- **2<sup>nd</sup> Shaft end**
  - RX1 and RX3: possibility to mount standard tacho or encoder
  - RX5 and RX6: possibility to mount standard tacho, adaptation for encoder mounting in option
- **Output cables 1 m without connector**
- **Options**
  - Brake
  - Tachometer
  - Adaptation 2<sup>nd</sup> shaft end for encoder mounting (RX5 and RX6)



### Technical Characteristics - Overview

<b>Motor type</b>	CC Motors with rare ferrite magnets
<b>Protection degree</b>	RX1 and RX3: IP40 RX5 and RX6: IP54
<b>Insulation</b>	Class F

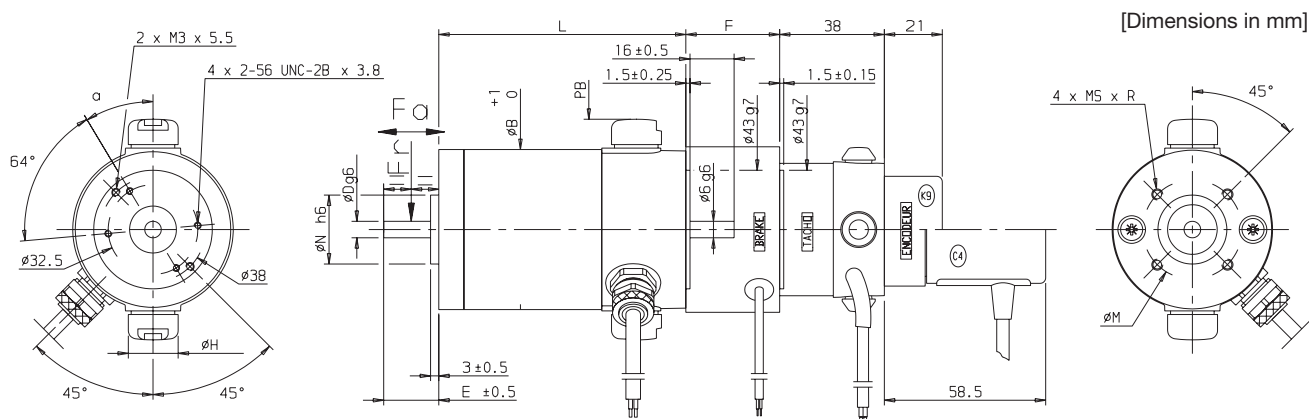
## Technical Data

Torque at low speed $M_0$ [Nm]	Permanent current at low speed $I_0$ [A]	Rated Voltage $U$ [V]	Rated Speed $N$ [min <sup>-1</sup> ]	Rotor Inertia [kgmm <sup>2</sup> ]	Product Code			Typical combination
0.285 0.4	2.8 3.6	44.5 46	3000 3000	50 68	RX120LR1 RX130HR1	■ ■	00 00	RTS 3/10-40 M RTS 10/20-60 <sup>(1)</sup>
1.08 1.54	7.8 9.4	54 59	3000 2900	500 720	RX320ER1 RX330CR1	■ ■	00 00	RTS 10/20-60 <sup>(1)</sup> RTS 10/20-60 <sup>(1)</sup>
2.7 3.7	7.7 10.3	119 116	2800 2700	1280 1740	RX520KR1 RX530FR1	■ ■	00 00	RTS 12/24-130 T RTS 12/24-130 T
5 7.8	10.5 16	134 134	2400 2400	3500 5000	RX620JR1 RX630ER1	■ ■	00 00	RTS 12/24-130 T RTS 20/40-130 T

<sup>(1)</sup> M = single phase or T = three phase

## Dimensions

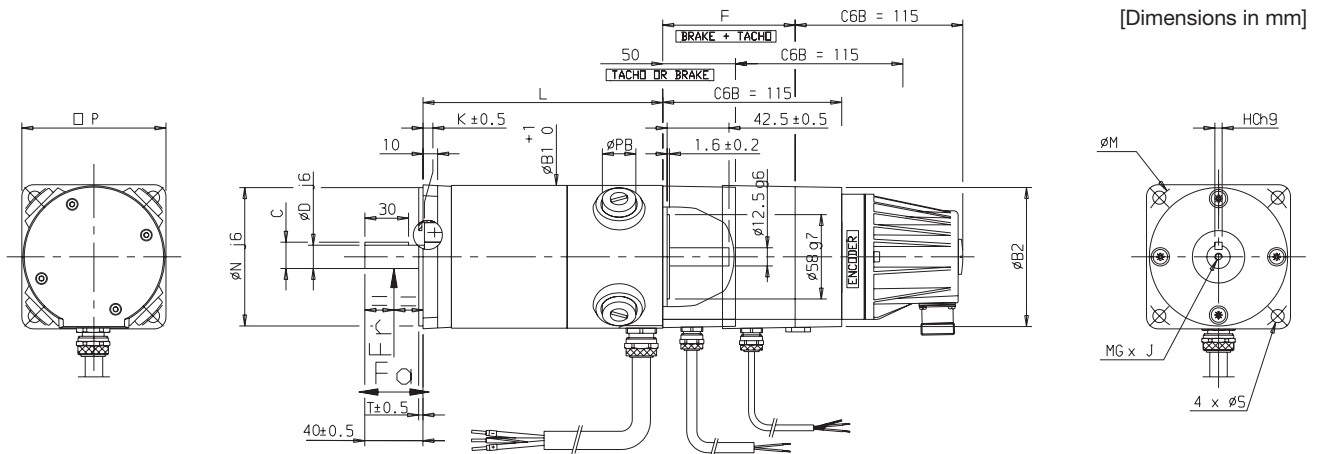
### RX1 and RX3



RX1 and RX3 with brake, tacho and encoder dimensions

Motor	H	a	N	D	E	B	PB	L	F	MSxR	M	Weight [kg]	Fr <sup>(1)</sup> [daN]	Fa <sup>(1)</sup> [daN]
RX120	18.5	31°	25	6	20	58	80	122.5	34	M4x6	36	1.35	18	16
RX130	18.5	31°	25	6	20	58	80	147.5	34	M4x6	36	1.6	20	16
RX320	23	26°	50	11	32	84	100	178.5	40	M5x10	65	4	45	23
RX330	23	26°	50	11	32	84	100	218.5	40	M5x10	65	5.2	50	23

## RX5 and RX6



**RX5 and RX6 with brake, tacho and encoder dimensions**

Motor	P	N	C	D	T	K	B1	PB	L	F	B2	S	M	MGxJ	HC	Weight [kg]	Fr <sup>(1)</sup> [daN]	Fa <sup>(1)</sup> [daN]
<b>RX520</b>	100	95	18	16	3	1	98	25	216	91	96	9	115	M5x15	5	6.6	80	30
<b>RX530</b>	100	95	18	16	3	1	98	25	266	91	96	9	115	M5x15	5	8.7	85	30
<b>RX620</b>	120	110	21.5	19	3.5	0.5	116	30	272	93	117	10	130	M6x18	6	13	95	40
<b>RX630</b>	120	110	21.5	19	3.5	0.5	116	30	358	93	117	10	130	M6x18	6	18.5	100	40

<sup>(1)</sup> Fr and Fa not cumulative

## Options

### Tachometers and brakes

Motors	Tachometer		Brakes [Voltage 24 VDC +/- 10 %]			
	Model	EMF [V/1000 min <sup>-1</sup> ]	Holding torque [Nm]		Inertia [kgmm <sup>2</sup> ]	Weight [kg]
			20 °C	100 °C		
<b>RX1</b>	TBN 206	6	1	0.9	10	0.4
<b>RX3</b>	TBN 206	6	1.5	1.4	10	0.18
<b>RX5</b>	TBN 306	6	6	5.5	53	0.45
<b>RX6</b>	TBN 306	6	12	11.5	157	0.9

### Encoders

Model	Associated Motors	Pulse per rev	Encoder Reference	Mounting kit Reference	Connector Reference
<b>C 2</b>	RX1 / RX3	500	220215P0001	220071R0025	-
	RX1 / RX3	1000	220215P0004	220071R0025	-
<b>C 6</b>	RX5 / RX6	500	220024P0001	220071R0002	220065R4621
	RX5 / RX6	1000	220024P0003	220071R0002	220065R4621
	RX5 / RX6	2000	220024P0006	220071R0002	220065R4621
	RX5 / RX6	5000	220024P0005	220071R0002	220065R4621
<b>C 6 B</b>	RX5 / RX6	500	220031R0001	220071R0004	220065R4621
	RX5 / RX6	1000	220031R0003	220071R0004	220065R4621
	RX5 / RX6	2000	220031R0008	220071R0004	220065R4621
	RX5 / RX6	2500	220031R0004	220071R0004	220065R4621
	RX5 / RX6	5000	220031R0005	220071R0004	-

## Order Code

### RX Series

	1	2	3	4	5	6	7
Order example	<b>RX</b>	<b>120</b>	<b>E</b>	<b>R</b>	<b>1</b>	<b>0</b>	<b>11</b>

<b>1</b>	<b>Motor type</b>	
	RX	Motor with ferrite magnets
<b>2</b>	<b>Motor size and length</b>	
	120	
	130	see table "Technical data"
	320	
	...	
<b>3</b>	<b>Winding</b>	
	L	Depend of motor size, speed and voltage/current, see table "Technical data"
	H	
	M	
	...	
<b>4</b>	<b>Fix code</b>	
	R	
<b>5</b>	<b>Mechanical features</b>	
	1	Output cables (standard)
	2	Terminal box
	3	Motor with resolver
	5	Special motor
<b>6</b>	<b>Options</b>	
	0	No accessories (standard)
	1	Tacho
	2	Brake (RX3, RX5, RX6)
	3	Tacho + brake (RX3, RX5, RX6)
	4	Encoder adaptation <sup>(1)</sup> (size 5 and 6 only)
	5	Tacho + Encoder adaptation (size 5 and 6 only)
	6	Brake + Encoder adaptation (size 5 and 6 only)
	7	Tacho + Brake + Encoder adaptation (size 5 and 6 only)
<b>7</b>	<b>Customer specification</b>	
	00	Standard catalogue definition - smooth shaft (size 1 -> 4) - shaft with key way (size 5-6)

<sup>(1)</sup> Encoder adaptation is standard for RX1 and RX3.

# Pancake DC Servo Motor - AXEM Series

## Overview

### Description

The AXEM motor, with more than 2 million units produced, is one of the most widespread servo motors in the world. With its disk rotor, composed solely of copper and insulator the Axem motor achieves high dynamics and excellent regulation of motion at low speed, as well as silent and vibration-free functioning. It is robust, efficient, and low maintenance.

### Advantages

- Very low speed modulation
- Exceptional regulation at low speed
- High dynamic characteristics  
low rotor inertia
- Silent and vibration-free functioning
- Maintenance free
- Disk rotor
- Protection: IP44  
IP20 for ventilated models
- Class F insulation

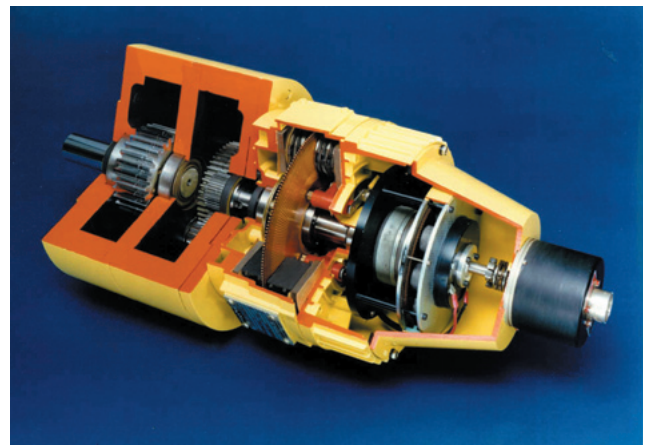
### Applications

- Factory Automation
- Life Science Diagnostic



### Technical Characteristics - Overview

<b>Nominal torque</b>	0.14...19.2 Nm
<b>Nominal current</b>	6.4...44 A
<b>Nominal voltage</b>	14...178 V
<b>Nominal speed</b>	3000, 4800 min <sup>-1</sup>
<b>Inertia</b>	29...7400 kgmm <sup>2</sup>



## Technical Data

Motor	Nominal torque [Nm]	Nominal current [A]	Nominal voltage [V]	Nominal speed [min <sup>-1</sup> ]	Inertia [kgmm <sup>2</sup> ]
F9M4R	0.14	6.4	22	4800	35
F9M2	0.282	11	14	3000	29
F9M4	0.346	6.7	26	3000	35
F9M4H	0.537	6.5	35	3000	34
F12M4R	0.42	8	37	4800	150
F12M2	0.61	11.7	24	3000	105
F12M4	0.77	7.7	43	3000	150
F12M4H	1.1	7.2	61	3000	160
MC13S	1.2	7.6	64	3000	235
MC17H	1.8	6.9	102	3000	790
MC17B	1.2	24	23.5	3200	790
MC19P	3.2	14.5	83	3000	1000
MC19P <sup>(1)</sup>	5.1	22.2	87	3000	1000
MC19S	3.2	7.3	165	3000	1000
MC19S <sup>(1)</sup>	5.1	11.1	171	3000	1000
MC19B	2.8	46	23.5	3000	1000
MC23S	6.1	13	170	3000	2300
MC23S <sup>(1)</sup>	10.5	21.8	178	3000	2300
MC24P	7.3	18.9	136	3000	3200
MC24P <sup>(1)</sup>	14.3	36	142	3000	3200
MC27P	14.3	33	152	3000	7400
MC27P <sup>(1)</sup>	19.2	44	154	3000	7400

<sup>(1)</sup> Cooling by external fan 10 l/s

Encoder					
Type	Associated motor	Pulse/rev.		Inertia [kgmm <sup>2</sup> ]	Weight [kg]
		standard	option		
C2	F	500	1000	0.1	0.035
		250			
C4	F	500	1000	2.3	0.2
			2500		
C6B	MC	500	1000	3	0.45
			2500		
			5000		

Tachy		
Type	Associated motor	EMF [V/1000 min <sup>-1</sup> ]
F9T	F9	3
FC12T	F12 / MC	6
TBN 206	F9 / F12	6
TBN 420	MC	20

Brake (24 VDC ± 10%)				
Associated motor	Holding torque		Inertia [kgmm <sup>2</sup> ]	Weight [kg]
	Magnet brake [Nm]	Spring brake [Nm]		
F9 - F12	-	1.5	10	0.47
MC13	2	-	23	0.3
MC17 / MC19	5	-	65	0.6
MC23 / MC24	12	-	214	1.1
MC27	20	-	570	1.9
MC17	-	4	25	1.4
MC19	-	8	70	1.9
MC23 / 24 / 27	-	16	135	2.8

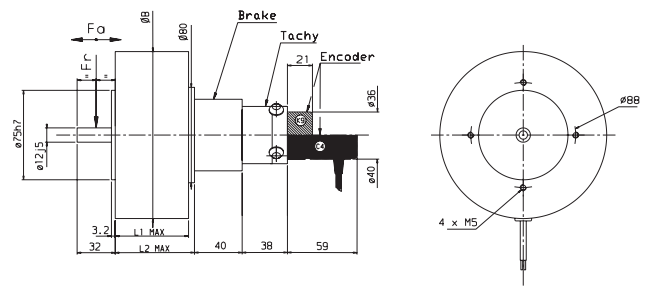


## Dimensions

### F9 - F12 dimensions

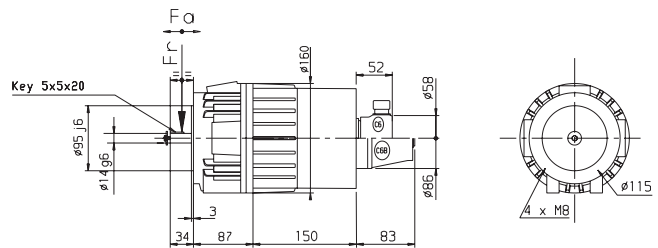
Motor	L1 [mm]	L2 [mm]	Weight [kg]	Fr <sup>(1)</sup> [daN]	Fa <sup>(1)</sup> [daN]
F9M4R	34	46.5	1.1	14	2.5
F9M2	52.5	65	2.3	14	2.5
F9M4	52.5	65	2.3	14	2.5
F9M4H	64	76.5	2.8	14	2.5
F12M4R	37.5	51	2.9	14	2.5
F12M2	61.5	71.5	3.85	14	2.5
F12M4	61.5	71.5	3.85	14	2.5
F12M4H	74	84	5	14	2.5

F9:  $\phi B = \phi 110$   
F12:  $\phi B = \phi 140$



### MC13 dimensions

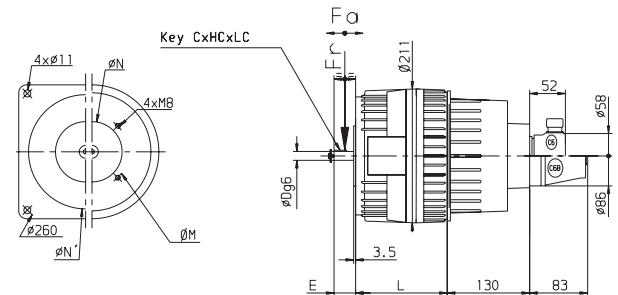
Motor	Weight [kg]	Fr <sup>(1)</sup> [daN]	Fa <sup>(1)</sup> [daN]
MC13	4	35	13



### MC17 - MC19 dimensions

Motor	M [mm]	N [mm]	N <sup>(1)</sup> [mm]	E [mm]	L [mm]	Weight [kg]	Fr <sup>(1)</sup> [daN]	Fa <sup>(1)</sup> [daN]
MC17	115	95	180	34	163	6.5	60	35
MC19	165	130	130	50	163	9.7	60	35

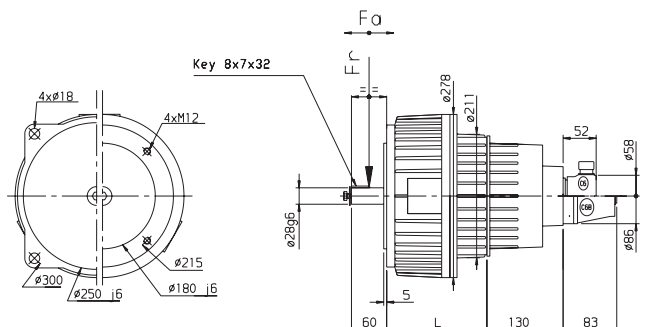
MC17: C x HC x LC = 5 x 5 x 20  
MC19: C x HC x LC = 8 x 7 x 32



### MC23 - MC24 - MC27 dimensions

Motor	L [mm]	B [mm]	Weight [kg]	Fr <sup>(1)</sup> [daN]	Fa <sup>(1)</sup> [daN]
MC23	173	278	17	75	40
MC24	185	278	23	80	45
MC27	198	316	35	90	50

Dimensions including brake, tachy and encoder  
(<sup>1</sup>) Fr and Fa not cumulative





# Parker's Motion & Control Technologies

At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further info call 00800 27 27 5374.



## AEROSPACE

### Key Markets

- Aircraft engines
- Business & general aviation
- Commercial transports
- Land-based weapons systems
- Military aircraft
- Missiles & launch vehicles
- Regional transports
- Unmanned aerial vehicles

### Key Products

- Flight control systems & components
- Fluid conveyance systems
- Fluid metering delivery & atomization devices
- Fuel systems & components
- Hydraulic systems & components
- Inert nitrogen generating systems
- Pneumatic systems & components
- Wheels & brakes



## CLIMATE CONTROL

### Key Markets

- Agriculture
- Air conditioning
- Food, beverage & dairy
- Life sciences & medical
- Precision cooling
- Processing
- Transportation

### Key Products

- CO<sup>2</sup> controls
- Electronic controllers
- Filter driers
- Hand shut-off valves
- Hose & fittings
- Pressure regulating valves
- Refrigerant distributors
- Safety relief valves
- Solenoid valves
- Thermostatic expansion valves



## ELECTROMECHANICAL

### Key Markets

- Aerospace
- Factory automation
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Paper machinery
- Plastics machinery & converting
- Primary metals
- Semiconductor & electronics
- Textile
- Wire & cable

### Key Products

- AC/DC drives & systems
- Electric actuators
- Controllers
- Gantry robots
- Gearheads
- Human machine interfaces
- Industrial PCs
- Inverters
- Linear motors, slides and stages
- Precision stages
- Stepper motors
- Servo motors, drives & controls
- Structural extrusions



## FILTRATION

### Key Markets

- Food & beverage
- Industrial machinery
- Life sciences
- Marine
- Mobile equipment
- Oil & gas
- Power generation
- Process
- Transportation

### Key Products

- Analytical gas generators
- Compressed air & gas filters
- Condition monitoring
- Engine air, fuel & oil filtration & systems
- Hydraulic, lubrication & coolant filters
- Process, chemical, water & microfiltration filters
- Nitrogen, hydrogen & zero air generators



## FLUID & GAS HANDLING

### Key Markets

- Aerospace
- Agriculture
- Bulk chemical handling
- Construction machinery
- Food & beverage
- Fuel & gas delivery
- Industrial machinery
- Mobile
- Oil & gas
- Transportation
- Welding

### Key Products

- Brass fittings & valves
- Diagnostic equipment
- Fluid conveyance systems
- Industrial hose
- PTFE & PFA hose, tubing & plastic fittings
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



## HYDRAULICS

### Key Markets

- Aerospace
- Aerial lift
- Agriculture
- Construction machinery
- Forestry
- Industrial machinery
- Mining
- Oil & gas
- Power generation & energy
- Truck hydraulics

### Key Products

- Diagnostic equipment
- Hydraulic cylinders & accumulators
- Hydraulic motors & pumps
- Hydraulic systems
- Hydraulic valves & controls
- Power take-offs
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



## PNEUMATICS

### Key Markets

- Aerospace
- Conveyor & material handling
- Factory automation
- Food & beverage
- Life science & medical
- Machine tools
- Packaging machinery
- Transportation & automotive

### Key Products

- Air preparation
- Compact cylinders
- Field bus valve systems
- Grippers
- Guided cylinders
- Manifolds
- Miniature fluidics
- Pneumatic accessories
- Pneumatic actuators & grippers
- Pneumatic valves and controls
- Rodless cylinders
- Rotary actuators
- Tie rod cylinders
- Vacuum generators, cups & sensors



## PROCESS CONTROL

### Key Markets

- Chemical & refining
- Food, beverage & dairy
- Medical & dental
- Microelectronics
- Oil & gas
- Power generation

### Key Products

- Analytical sample conditioning products & systems
- Fluoropolymer chemical delivery fittings, valves & pumps
- High purity gas delivery fittings, valves & regulators
- Instrumentation fittings, valves & regulators
- Medium pressure fittings & valves
- Process control manifolds



## SEALING & SHIELDING

### Key Markets

- Aerospace
- Chemical processing
- Consumer
- Energy, oil & gas
- Fluid power
- General industrial
- Information technology
- Life sciences
- Military
- Semiconductor
- Telecommunications
- Transportation

### Key Products

- Dynamic seals
- Elastomeric o-rings
- EMI shielding
- Extruded & precision-cut, fabricated elastomeric seals
- Homogeneous & inserted elastomeric shapes
- High temperature metal seals
- Metal & plastic retained composite seals
- Thermal management



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